

**Originally filed by Verizon Airfone on Sep. 7, 2004 in conjunction with "Satellite Competition to Terrestrial Air-to-Ground" white paper.**

From Boeing News Release, available at

[http://www.boeing.com/news/releases/2000/news\\_release\\_000427a.html](http://www.boeing.com/news/releases/2000/news_release_000427a.html) (last visited on Sep. 7, 2004)

**Boeing Unveils High-Speed Global Communications Service - Live In-Flight Internet, E-Mail, TV; Available Next Year**

**CNN, Loral, Alenia, Matsushita, Mitsubishi, CNBC to Participate**

**NEW YORK AND LONDON, April 27, 2000** -- The Boeing Company [NYSE: BA] today announced plans to develop a global communications network and other services that will revolutionize the way people travel. Called [Connexion by Boeing<sup>SM</sup>](#), the system will provide air travelers with an unparalleled array of high-speed data communication services via a space-based network -- all for about the same price as cellular phone service.

Using *Connexion by Boeing<sup>SM</sup>*, commercial airline passengers soon will be able to access the Internet, e-mail, television, news and information -- essentially any form of high data-rate communication today's business or leisure travelers require -- in real-time at 40,000 feet. Intended to extend home- and office-like connectivity into the skies, Boeing's mobile broadband services will help keep people in touch, even when moving 500 mph. Other applications for *Connexion by Boeing<sup>SM</sup>* include corporate and private business jets, U.S. government platforms, and aircraft health monitoring.

"Boeing intends to be a leader in the new mobile economy -- and that means helping our airline customers and their passengers stay globally connected at all times," said Phil Condit, Boeing chairman and chief executive officer. "In commercial air travel today, you have a few choices -- you can read a book or a magazine or watch one of several movies. But soon, when you can watch a live soccer match or e-mail family or shop online or keep an eye on your stocks -- the airplane will begin to look like your home or office and the experience of travel will change."

Boeing has signed memoranda of agreement with CNN Inflight Services, Atlanta, Ga.; Mitsubishi Electric Corp., Tokyo, Japan; Alenia Spazio, a Finmeccanica Company, Rome, Italy; Loral Skynet® of Bedminster, N.J.; Matsushita Avionics Systems Corp., Bothell, Wash.; and CNBC, Fort Lee, N.J. The company currently is negotiating with prospective airline partners, and additional content and service suppliers.

While anticipated revenues for *Connexion by Boeing<sup>SM</sup>* have not been announced, analysts project the program's addressable market to be about \$70 billion over the next 10 years. Company officials said they hope to capture a significant share of that market with the venture's unique services.

With *Connexion by Boeing<sup>SM</sup>*, airline passengers will be able to choose from a multitude of personalized communications services, including Internet and corporate intranet access, e-commerce, live television and entertainment, transmission and receipt of data, shopping, travel and destination information - all in real time. Airline operators also will benefit from in-flight access to aircraft and crew data.

Digital broadband capability, which provides increased bandwidth -- or a larger "pipeline" -- for two-way interactive applications, allows customers to send and receive data at rates equivalent to cable Internet access. To provide the capability to airborne travelers, Boeing will use advanced antenna

technology and existing satellites, while extending to a mix of new and existing satellites as the service matures.

"Clearly, this is an exciting growth market for Boeing," said Jim Albaugh, president of Boeing Space and Communications Group. "Commercial information and communications are areas where we understand the customer, where we bring unique solutions no one else has the capabilities or resources to provide, and where we can apply our knowledge of large-scale systems integration to provide mobile users seamless connectivity," Albaugh said.

The introduction of *Connexion by Boeing*<sup>SM</sup> follows the pending acquisition of Hughes Space & Communications and signals the move by Boeing into commercial, space-based communications markets.

Intended as a global service, initially *Connexion by Boeing*<sup>SM</sup> will be available to commercial airline customers operating in North America. Service later will be expanded to other regions, over ocean areas and onto other moving platforms. The system is already available for installation on private business jets today and will be available on commercial aircraft shortly. System installations are expected to begin in late 2001, with operability expected shortly thereafter.

"Our immediate task is to make these services available to the airlines and the three million airline passengers who board some 42,300 flights on Boeing-built planes daily. The system seeks a far broader market," Condit said. "Ultimately, we see *Connexion by Boeing*<sup>SM</sup> as an enabler for addressing civil and military information needs, such as air traffic management and integrated military communications."

With headquarters in Seattle, The Boeing Company is the largest aerospace company in the world and the United States' leading exporter. The company's capabilities in aerospace include commercial jetliners, military aircraft, rotorcraft, electronic and defense systems, missiles, rocket engines, launch vehicles, and advanced information and communication systems. The company has an extensive global reach with customers in 145 countries and manufacturing operations throughout the United States, Canada and Australia.

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From xSP News, available at <http://www.internetnews.com/xSP/article.php/349991> (last visited on Sep. 7, 2004).

**April 28, 2000**

## **Boeing Aims Plan for In-Flight Communications Service**

**By [Carol King](#)**

[The Boeing Co.](#) Thursday revealed plans to develop a global communications network that will provide air travelers with an array of high-speed data communication services via a space-based network.

Commercial airline passengers soon will be able to access the Internet, e-mail, television, news and information in real-time at 40,000 feet, using the network, dubbed Connexion by Boeing. Intended to extend home- and office-like connectivity into the skies, the Boeing ([BA](#)) mobile broadband service is expected to have a price comparable to cellular phone service. Other applications for the communications system will include corporate and private business jets, U.S. government platform and aircraft health monitoring.

Digital broadband capability, which provides increased bandwidth for two-way interactive applications, will allow customers to send and receive data at rates equivalent to cable Internet access. Boeing will use advanced antenna technology and existing satellites, while extending to a mix of new and existing satellites as the service matures.

To date, Boeing has signed memoranda of agreement with CNN Inflight Services, Mitsubishi Electric Corp., Alenia Spazio, Loral Skynet Matsushita Avionics Systems Corp. and CNBC. The company has ongoing negotiations with prospective airline partners, and additional content and service suppliers.

The introduction of the service follows the pending acquisition of [Hughes Space & Communications](#) and signals the move by Boeing into commercial, space-based communications markets. Boeing is regarded as a leader in the aerospace industry; its capabilities include the manufacture of commercial jetliners, military aircraft, rotorcraft, electronic and defense systems, missiles, rocket engines, launch vehicles and advanced information and communication systems.

"Clearly, this is an exciting growth market," said Jim Albaugh, president of Boeing Space and Communications Group.

"Commercial information and communications are areas where we understand the customer, where we bring unique solutions no one else has the capabilities or resources to provide, and where we can apply our knowledge of large-scale systems integration to provide mobile users seamless connectivity."

From Boeing News Release, available at  
[http://www.boeing.com/news/releases/2001/q2/news\\_release\\_0106131/html](http://www.boeing.com/news/releases/2001/q2/news_release_0106131/html) (last visited on Sep. 7, 2004)

## American, Delta and United Airlines Join With Connexion by Boeing to Pursue Broadband Inflight Connectivity Venture

Connexion by Boeing  
News Conference -  
Highlights



Connexion by Boeing  
News Conference - Full  
Version



In order to view this  
video you will need the  
RealPlayer plug-in  
installed in your  
browser.

[View the Conference  
with Windows Media  
Player](#)

In order to view this  
video you will need the  
Windows Media Player  
plug-in installed in  
your browser.



### Innovative Technology Will Conveniently Keep Airline Passengers Connected to Internet While In Flight

**WASHINGTON, D.C., June 13, 2001** - American (NYSE:AMR), Delta (NYSE:DAL) and United (NYSE:UAL) airlines today announced a new partnership with Boeing (NYSE:BA) aimed at providing millions of worldwide airline passengers each year with two-way broadband connectivity to e-mail, the Internet, corporate intranets, live television and entertainment, and other services while in flight.

In a joint news conference, three of the world's leading airlines and [Connexion by Boeing](#) announced they have signed a Letter of Intent to pursue forming a new global business venture to provide broadband communications and data services to commercial aircraft. The proposed venture would be jointly owned by Boeing and the three airlines, with Boeing serving as the major shareholder with overall management responsibility.

"It will take this kind of collaboration to bring a high-quality service to the airline passenger and the entire marketplace," said Scott Carson, president, Connexion by Boeing. "Each of the airlines and Boeing bring together a critical mass to help ensure success for this service with airline passengers and the global airline industry."

Upon signing definitive agreements, Boeing and the airlines each will contribute funding, certain intellectual property, and other assets necessary to carry on the business of the proposed venture. As part of the definitive agreements, the three airlines will equip a total of 1,500 aircraft with the venture's innovative, high-speed broadband Internet connectivity service, which will retain the Connexion by BoeingSM name. The timing of the first installation will be in the second half of 2002.

"This is an exciting new frontier for each of the founding airlines," said James A. Beer, vice president, corporate development and treasurer for American Airlines. "Our goal is to bring a high-quality service to the market - one that will materially enhance the

productivity of passengers while in flight. This joint effort between the four companies is essential to ensuring we create a service that will be valued by customers."

The next steps will involve the three airlines and Boeing working together to further develop the venture's service offering and business plan, and complete the definitive agreements required to launch the new service.

"The three airlines and Boeing bring exceptional familiarity with aircraft and leading-edge space and aviation technology," said Ray Valeika, senior vice president - Technical Operations, Delta Air Lines. "This provides the expertise necessary to develop a quality product that is attractive to the industry as a whole."

"There currently is no service comparable to this in the market," said Larry DeShon, senior vice president - Marketing for United Airlines. "Each of the airlines brings an unprecedented level of knowledge about the in-flight connectivity needs of passengers. In the end, it is passengers who will truly benefit from this service."

Current long-term forecasts show the worldwide commercial airplane fleet of about 14,500 jetliners growing at a rate of 4.8 percent a year. In the next 24 hours alone, 4.7 million people will board 41,500 flights around the world.

"The scope of the installations will allow the venture's system and service to be designed and developed for reasonable costs," said Boeing's Carson. "That's good news for both the airlines and their passengers."

Connexion by Boeing, the first truly broadband communication service for people on the move, is the market-leading initiative working to bring today's high-speed, cable-quality Internet and company intranet data services to the airborne environment. Airline passengers will soon be able to choose from a multitude of personalized real-time services including Internet and corporate intranet access, e-commerce, live television and entertainment, transmission and receipt of data, shopping, travel and destination information. Airline operators also will benefit from in-flight access to airline and crew data not available through traditional communication channels. For additional information, visit the Connexion by Boeing web site at [www.connexionbyboeing.com](http://www.connexionbyboeing.com).

American Airlines, a subsidiary of AMR Corp. (NYSE: AMR), is celebrating its 75th anniversary in 2001. With a fleet of 719 aircraft,

American is one of the largest scheduled passenger airlines in the world and employs more than 117,000 people around the globe. Together with its regional affiliate, American Eagle, American serves 238 cities in 51 countries with more than 4,100 daily flights. American is the only airline to offer "More Room Throughout Coach." For more information, please visit <http://www.aa.com/>.

Delta Air Lines' goal is to become the No. 1 airline in the eyes of its customers, flying passengers and cargo from anywhere to everywhere. People choose to fly Delta more often than any other airline in the world on 5,234 flights each day to 367 cities in 64 countries on Delta, Delta Express, Delta Shuttle, Delta Connection carriers and Delta's Worldwide Partners. Delta is a founding member of SkyTeam, a global airline alliance that gives customers extensive worldwide destinations, flights and services. For more information, go to <http://www.delta.com/>.

United Airlines offers nearly 2,300 flights a day on a network that spans the globe. United NewVentures is a wholly owned subsidiary of UAL Corp. that was created to focus the airline's Internet initiatives and investments into one company. United.com, the official Web site for United Airlines, allows passengers to research flight, schedule and fare information and purchase travel on over 500 airlines worldwide. More information and a complete list of available services and functions can be found at <http://www.united.com/>.

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(847) 700-2278  
(847) 700-5538 (Main media line)

From Computerworld, available at <http://www.computerworld.com/mobiletopics/mobile/story/0,10801,66221,00.html> (last visited on Sep. 7, 2004)

## Airlines Break with Connexion by Boeing

News Story by [Jennifer DiSabatino](#)

DECEMBER 03, 2001 ([COMPUTERWORLD](#)) - The three U.S. airlines that were teaming with The Boeing Co. to develop a high-speed Internet service for use on planes all said last week that they have pulled their financial support for the joint venture.

Citing the harsh downturn in business that has hit the travel industry since the Sept. 11 terrorist attacks, officials at American Airlines Inc., Delta Air Lines Inc. and United Air Lines Inc. said the planned Connexion by Boeing service has become an unaffordable luxury item, at least until the economy improves.

Chicago-based Boeing confirmed that its joint venture with the three airlines has been suspended. But Boeing spokesman Terrance Scott said the airplane manufacturer will continue the Connexion project with German airline Lufthansa AG, which has also announced plans to offer the service in its aircraft.

"There is some funding [from the airlines], but we're not dependent upon that to go forward," Scott said. "We're still on track with Lufthansa."

Some of Boeing's private aircraft and government customers have also shown an interest in Connexion, he added. "What they're looking at is, can we accelerate [implementation of] the service?" he said.

Lufthansa affirmed that it plans to stay involved with the project. But Boeing and Lufthansa are now eyeing a much smaller deployment of the Connexion service than originally envisioned, starting with 80 planes by late next year.

Fort Worth, Texas-based American, Atlanta-based Delta and Chicago-based United all signed on to help fund the development of Connexion in June. The first hint that they were wavering came two months ago, when Delta said it was re-examining the proposed schedule for testing and rolling out the service in the wake of the terrorist attacks.

Andy McDill, a spokesman for subsidiary Delta Technology Inc., said last week that Delta's decision to withdraw from the joint venture with Boeing is temporary.

"We're suspending it for the moment," McDill said. "It's a financial and resource issue at this point. We still believe [in high-speed Internet access on planes]. We just need to focus on our core business." He gave no indication of when Delta might resume its funding of Connexion's development.

Connexion is being designed to provide airplane passengers with broadband access to the Internet, e-mail and other services. Airlines will have to retrofit their planes with Ethernet-type wiring and phased-array antennas to use the service, according to Boeing.

*Laura Rohde of the IDG News Service contributed to this report.*

**Read accompanying story:**

- [Service Still Eyed as Possible Security Tool](#)

**Connexion Lost**  
*Plans for rolling out the Connexion by Boeing technology have changed dramatically since Sept. 11.*

| THEN  |
|---|
| Boeing was working with four airlines to offer the Internet access service in 1,500 planes starting in the middle of next year. |
| NOW   |

The infographic is a vertical rectangle with a black background. It features a central white box with a thin red border. The title 'Connexion Lost' is in bold black font, followed by a subtitle in italics. Below this is a table with two sections: 'THEN' and 'NOW'. The 'THEN' section contains text about Boeing's original plans to offer internet access to 1,500 planes. The 'NOW' section is currently empty.



From Ananova, available at [http://www.ananova.com/business/story/sm\\_460827.html](http://www.ananova.com/business/story/sm_460827.html)  
(last visited on Sep. 7, 2004)

**Ananova:**

## **American Airlines, United, Delta pull out of Boeing's internet system**

Boeing Corp said AMR Corp's American Airlines, Delta Air Lines and UAL Corp's United Airlines have withdrawn their financial support for Boeing's Connexion system, a project intended to connect airline passengers to the internet, the Wall Street Journal reported.

The Connexion system was originally scheduled for installation on as many as 1,500 of their jetliners beginning in mid-2002.

Boeing said the airlines decided to pull out following the Sept 11 terrorist attacks in the US.

The airlines, which are losing millions of dollars each day, told Boeing that Connexion was among ventures now considered expendable, the report said.

"They told us that it is likely that they would come back as customers rather than as equity partners," said a spokesman for Connexion, based in Seattle.

The Connexion project, described by the Journal as Boeing's most ambitious diversification efforts, appears to be in jeopardy now that the three largest US airlines have pulled out as partners on the project.

However, some company executives weeks ago suggested the focus had shifted to providing airborne security by transmitting data or video to ground controllers.

Several senior Boeing executives, including Boeing chairman and chief executive officer Phil Condit, have suggested the Connexion business may be able to evolve into one that serves the heightened interest in aviation security. So far, Boeing has released no detailed plans about what that might involve; nor has it said who would pay for it.

Boeing's primary rival in this arena, a partnership comprising Airbus Industrie and Tenzing Communications Inc of Seattle, previously said some of its plans for Internet-in-the-sky have been scaled back while others are on indefinite hold.

A spokesman for American Airlines said the carrier is "still very interested in high-speed internet service for our customers, but right now we are concentrating all of our efforts on our core operations."

He could not estimate how long the company would wait before it begins examining the internet venture again, but people familiar with the situation said it probably would be at least a couple of years. NNN

From Boeing website, available at <http://www.boeing.com/connexion/background.html>  
(last visited on Sep. 7, 2004)

## **Connexion by Boeing<sup>SM</sup>**

### **Focus on anytime, anywhere connectivity**

Connexion by Boeing<sup>SM</sup> is a mobile information services provider revolutionizing the way people on the move communicate, inform and entertain themselves. It does so by providing high-speed, two-way Internet-based connectivity to aircraft in flight.

### **The Connexion by Boeing<sup>SM</sup> service**

Connexion by Boeing serves two important market segments: commercial aircraft operators and their passengers as well as executive aircraft, including operators of private and government executive jets.

Using laptops or personal digital assistants (PDAs), passengers can enjoy secure broadband access to the Internet, personal and business e-mail accounts and company intranets. They also will be able to send and receive attachments and view entertainment - all at DSL-like speeds.

Connexion by Boeing's value extends beyond passenger services. The service also brings value to aircraft operators, enabling them to use Connexion by Boeing's extraordinary bandwidth to obtain operational efficiencies, improve customer service and enhance security. A worldwide network of ground stations and round-the-clock customer care support the service.

The Connexion by Boeing service is currently available to the executive services market in the United States, including operators of private and government aircraft. Commercial airline passengers will be introduced to the service in the first quarter of 2003, when both Lufthansa German Airlines and British Airways begin three-month service demonstrations. Japan Airlines and Scandinavian Airlines System (SAS) have announced plans to equip long-range jetliners in their fleets with the service beginning in 2004.

Full-scale launch of the Connexion by Boeing service is scheduled for early 2004, beginning with trans-Atlantic and Asia-Europe routes.

### **The Connexion by Boeing<sup>SM</sup> advantage**

Connexion by Boeing is backed by the resources and reputation of The Boeing Company. The system and service were devised by leveraging The Boeing Company's extraordinary breadth in space, satellites, communications and aircraft and by working intensively with 15 leading airlines worldwide in a process known as Connexion Working Together. The process contributed significantly to a common vision for passenger and operator benefits, and to ensure that the system and service are integrated seamlessly into airline fleets.

### **Further information**

Connexion by Boeing  
PO Box 3707, M-C 14-75  
Seattle, WA 98124-2207  
[www.boeing.com/connexion](http://www.boeing.com/connexion)

From The Guardian, available at <http://www.guardian.co.uk/airlines/story/0,1371,1218396,00.html> (last visited on Sep. 7, 2004)

## Boeing in control of broadband in the skies

**David Gow**  
**Monday May 17, 2004**  
[The Guardian](#)

Boeing, the troubled US plane-maker, is stealing a march on its European rival, Airbus, by seizing control of a market worth up to \$2bn (£1.1bn) a year in ten years: broadband in the skies.

Today an Airbus A340, flying from Munich to Los Angeles on flight LH452, will allow passengers to connect their lap-tops or mobiles to wireless broadband at 35,000ft.

The connection to the web, enabling passengers to send emails and link up with their company's intranet, is provided by Boeing via a series of satellites.

Scott Carson, president of Connexion by Boeing, says 50 aircraft will offer internet access by the end of this year and 150 by the end of 2005. Lufthansa is offering a flat rate of \$29.95 for an entire flight, including access to its free FlyNet portal giving news, weather and travel information.

The German carrier, which has installed FlyNet on five A340s and plans to equip its entire long-haul fleet of 80 Airbus and Boeing jets by the spring of 2006, is one of four airlines to sign up to Boeing which has lost its traditional dominance in plane sales to its European rival.

Mr Carson, who has signed deals with SAS, JAL and All Nippon Airways, said he was in talks with Singapore Airlines, China Airlines and British Airways to offer the same service.

Three US carriers were about to sign up until the September 2001 terrorist attacks sent the American aviation industry into a decline but Mr Carson says one US customer should emerge by the end of the year.

BA, which concluded a commercial service trial a year ago, is in protracted talks with Boeing which says the new service reduces the weight and number of wires in the traditional cabin, cutting fuel consumption.

Mr Carson says the service is targeted at the male executive aged under 54 and earning more than \$150,000 a year, with 62% of business travellers saying they are very interested in broadband in-flight access.

The cost of the basic three-hour connection should be \$14.95, though Lufthansa is offering 30 minutes at \$9.95, charging 25 cents a minute thereafter.

Mr Carson, who has easily outdistanced Airbus, whose own offering lags far behind, says the service will later this year offer "live" rebroadcast TV. He says it will also be extended to ships from mid-2005 while airline crews will control flight operations better, including security.

From Boeing News Release, available at [http://www.boeing.com/news/releases/2004/q1/nr\\_040105j.html](http://www.boeing.com/news/releases/2004/q1/nr_040105j.html) (last visited on Sep. 7, 2004)

## **China Airlines Selects Connexion by Boeing for In-flight Connectivity**

**SEATTLE, Jan. 5, 2003** - China Airlines (CAL) and [Connexion by Boeing<sup>SM</sup>](#), a business unit of Boeing (NYSE: BA), announced the signing of a Letter of Intent that will bring high-speed connectivity to travelers on commercial flights in and out of Taiwan. The LOI calls for the broadband data and entertainment service to be installed on the CAL long-haul fleet of aircraft beginning in late 2004. Financial terms were not disclosed.

"China Airlines is a clear leader in enhanced passenger service in a market that continues to openly embrace and implement new technologies," said Connexion by Boeing President Scott Carson. "We couldn't think of a better way to celebrate the new year going forward than to proudly announce China Airlines as our newest customer for in-flight mobile connectivity."

"As Internet technology improves, people depend on it more and more in everyday life," said Brian Chou, senior vice president of China Airlines. "China Airlines is proud to be the first airline in Taiwan to introduce in-flight mobile connectivity to better serve the needs of its passengers."

Initially, the agreement with Connexion by Boeing will cover CAL's long-haul fleet including Boeing 747-400 and Airbus A340-300 aircraft, and CAL will extend the service to other aircraft at a later date. The agreement outlines connectivity on certain long-haul flights between Taipei and Europe, and Taipei and North America. Specific routes also will be announced at a later date. In the interim, China Airlines and Connexion by Boeing teams will work together to define the installation schedule and levels of service that will be offered to CAL passengers.

Connexion by Boeing continues to build momentum as it prepares for the introduction of full-scale commercial service in early 2004. Lufthansa, Scandinavian Airlines System (SAS) and Japan Airlines have signed on as customers for the fastest available in-flight Internet, data and entertainment service. Singapore Airlines and All-Nippon Airways also have announced their intent to install the Connexion by Boeing service on their long-haul fleet of jetliners.

### **About Connexion by Boeing**

Connexion by Boeing is the mobile information services provider bringing broadband Internet, data and entertainment connectivity to mobile travelers. In addition to the commercial service offering, the Boeing business unit recently announced a high-speed connectivity solution for the business aviation market. For service-specific information visit [www.connexionbyboeing.com](http://www.connexionbyboeing.com) or for general information [www.boeing.com/connexion](http://www.boeing.com/connexion)

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From Boeing News Release, available at [http://www.boeing.com/news/releases/2003/q4/nr\\_031230j.html](http://www.boeing.com/news/releases/2003/q4/nr_031230j.html) (last visited on Sep. 7, 2004)

## **New Era to Begin in 2004 with In-Flight High-Speed Connectivity**

### **Connexion by Boeing concludes record-setting year as it prepares for start of commercial service**

SEATTLE, Dec. 30, 2003 – [Connexion by Boeing](#), a business unit of The Boeing Company, (NYSE:BA) made history repeatedly in 2003 with a series of unprecedented breakthroughs in mobile connectivity. In 2004, a new chapter in the history of travel will be written when airlines begin offering real-time, high-speed Internet, intranet and e-mail access in flight for their laptop-toting passengers.

"History will record 2004 as the year when air travelers for the first time could choose to be connected while in flight to family, colleagues and friends," said Scott Carson, president, Connexion by Boeing. "With the ability of modern jetliners to directly link cities that can be 16 hours or more apart, keeping in touch becomes increasingly important for productivity as well as for the traveler's ability to maintain a healthy balance between work commitments and obligations to family, friends and community."

A first glimpse of the new world of in-flight high-speed connectivity was made available in early 2003 to passengers of Lufthansa German Airlines and British Airways. The three-month service demonstrations, involving daily round-trip flights between Frankfurt and Washington, D.C., then London and New York, generated a series of historic firsts. Among them:

- The first in-flight high-speed Internet access by passengers on commercial airline flights.
- The first in-flight, high-speed Virtual Private Network-secured corporate intranet access by passengers on commercial airline flights.
- The first regulatory authorizations to operate wireless devices aboard commercial airliners in flight.
- The first in-flight wireless Internet access by commercial airline passengers.
- The first two-way video-teleconference between the air and the ground during a commercial airline flight.
- The first two-way, real-time e-mail exchange in flight between two airline passengers flying on different airplanes.
- The first creation and publication of a web page on the Internet during a commercial airline flight, including written and photographic content.

The success of those trials, along with the ongoing Connexion Working Together process, involving more than 20 of the world's leading airlines, led to the first definitive

airline service agreements for Connexion by Boeing. Combined, Lufthansa, Scandinavian Airlines System (SAS) and Japan Airlines have placed initial orders to equip more than 100 of their airplanes.

Singapore Airlines and All-Nippon Airways also have signed letters of intent to equip their long-range fleets with the Connexion by BoeingSM service, and progress is being made toward definitive agreements. When final, Singapore and ANA will join Lufthansa and SAS as four of the leading airlines in the Star Alliance to offer in-flight broadband connectivity. In addition, Connexion by Boeing is gaining momentum in the executive-jet market: Kingdom Holding Co. of Saudi Arabia announced plans to install the Connexion by Boeing system, initially on a Boeing 747.

Connexion by Boeing is the only real-time, high-speed service available to commercial airline passengers, and the only service offering full, Virtual Private Network-secured access to personal and work-related e-mail accounts and intranets. Commercial airline service will begin in spring 2004 with Lufthansa. The service also is available to operators of both private and government executive jets, directly through Connexion by Boeing or through a partnership with Rockwell Collins.

Among other achievements in 2003, a major milestone was reached in July at Geneva, Switzerland, when the World Radiocommunication Conference approved the use of a range of radio frequencies for satellite-based communications for aeronautical purposes. The allocation cleared the way for regulatory authorities within each country's airspace worldwide to authorize certain in-flight connectivity services such as Connexion by Boeing. Agreements also were reached with satellite service providers, including Eutelsat, Intelsat and Space Communications Corporation.

### **About Connexion by Boeing**

Connexion by Boeing, recipient of the 2003 World Travel Award for World's Leading High-Speed Internet Services Provider, brings broadband Internet, data and entertainment connectivity to travelers. The Boeing business unit recently announced a high-speed connectivity solution for the business aviation market, and definitive service agreements with Lufthansa, Scandinavian Airlines System and Japan Airlines to equip their long-haul aircraft with the service beginning in early 2004. In addition, All-Nippon Airways, Singapore Airlines and Kingdom Holding Co. have announced their intent to install the Connexion by Boeing system on their long-range aircraft. For information about the Connexion by Boeing service, visit [www.connexionbyboeing.com](http://www.connexionbyboeing.com). For general information, visit [www.boeing.com/connexion](http://www.boeing.com/connexion).

From Boeing News Release, available at [http://www.boeing.com/news/releases/2004/q4/nr\\_040325j.html](http://www.boeing.com/news/releases/2004/q4/nr_040325j.html) (last visited on Sep. 7, 2004)

## **Connexion by Boeing Announces Pricing for High-Speed In-Flight Internet Service**

### **First-of-Its-Kind Service to Offer Customers Real-Time, Affordable Access for Less Than \$30 per International Flight; Leading Airlines Prepare for Rollout**

SEATTLE, Wash., March 25, 2004 – [Connexion by Boeing<sup>SM</sup>](#), a business unit of The Boeing Company [NYSE:BA], today announced pricing details for its high-speed in-flight Internet service scheduled to become commercially available this spring.

Connexion by Boeing has created a model that enables airline passengers to affordably extend their on-the-ground connectivity experience. The result is more choices for how to use their time in the air using either of two initial pricing plans, which will vary depending on flight length:

- **Flat Rate Pricing Option:** (Unlimited access to the Internet) \$29.95 for long-haul flights (more than six hours); \$19.95 for medium-haul flights (between three and six hours); and \$14.95 for flights less than three hours.
- **Metered Pricing Option:** 30-minute starter package for \$9.95 with rates of \$0.25 per minute thereafter.

The pricing is based on extensive customer research conducted individually and in conjunction with leading airlines in Europe, Asia and the U.S. and is intended to be affordable for all travelers seeking secure, reliable access to the people and information that are important to them. Connexion by Boeing SM, which provides a broadband connection to the aircraft, is the only Internet service that offers users a high-speed, real-time experience comparable to the one they currently enjoy at the office or at home, including unrestricted virtual private network (VPN) access to personal and work-related e-mail accounts and intranets, as well as entertainment applications and an in-flight portal for customer service and support.

“This is truly about increasing the connectivity choices for airlines and their passengers,” explains Connexion by Boeing Vice President of Marketing and Corporate Sales David Friedman. “Pricing puts the final puzzle piece in place for a successful commercial launch that will in turn revolutionize the way people work, communicate and entertain themselves while mobile, and really expands the choices they have for doing so.”



“Our research shows that 38 percent of frequent travelers are willing to pay at least \$25 per flight for full, high-speed access to the Internet and their corporate network,” said Forrester Research analyst Henry Hartevelde. “In-flight broadband Internet access is a highly desirable amenity, especially among frequent business and leisure airline travelers. Airlines that don't offer passengers this kind of service risk losing a key segment of their customer base to carriers that do.”

Lufthansa will be the first airline to launch the Connexion by Boeing service on commercial flights originating from Germany this spring. Connexion by Boeing also has service agreements with several of the world's leading passenger airlines including Scandinavian Airlines System (SAS), Japan Airlines and ANA. Singapore Airlines and China Airlines also have expressed their intent to install the service in subsequent months.

Unlike narrowband services in the market today, the Connexion by Boeing service eliminates unexpected surprises by ensuring that business and leisure travelers won't have to change their terrestrial habits, count minutes or compute their kilobytes to gain access to the Internet and e-mail applications. Connexion by Boeing is also working directly with third-party mobile service providers to further simplify the customer experience and offer them the opportunity to have high-speed Internet access in planes through their home provider. As those agreements solidify, passengers will be able to log onto the Connexion by Boeing service using the same ID and password they might use in the home or office and have streamlined billing and customer support.

“We've met several significant industry and technology milestones to get to this point including: gaining international regulatory approvals; establishing an extensive global ground and satellite network; conducting successful service trials and securing airline commitments; and achieved unparalleled technology developments,” added Friedman. “We look forward to working with our airline partners to make true in-flight Internet access an affordable reality.”

#### **About Connexion by Boeing**

Connexion by Boeing, recipient of the 2003 World Travel Award for World's Leading High-Speed In-flight Internet Services Provider, brings high-speed Internet, data and entertainment connectivity to travelers. Connexion by Boeing also offers a high-speed connectivity solution for the business aviation market and has announced plans to enter the maritime market. For information about the Connexion by Boeing service, please visit [www.connexionbyboeing.com](http://www.connexionbyboeing.com).

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From Crain's Chicago Business, available at [http://www.chicagobusiness.com/cgi-bin/news.pl?post\\_date=2004-03-25&id=11898&rel=1](http://www.chicagobusiness.com/cgi-bin/news.pl?post_date=2004-03-25&id=11898&rel=1) (last visited on Sep. 7, 2004)

March 25, 2004

## **Stuck in the air? Surf the Web**

Boeing's Internet service lands first airline client

By [Kelly Quigley](#)

Boeing Co. on Thursday said its passenger Internet service will debut next month on Germany's largest carrier, Deutsche Lufthansa AG, and will be followed by several more European and Asian airlines later this year.

Chicago-based Boeing declined to disclose terms of its deal with Lufthansa, but said the airline would pay a one-time fee to have its fleet outfitted with the service, dubbed Connexion by Boeing. Boeing will continue to own and maintain the equipment, and will share revenues with the airlines.

Passengers will have the option of paying \$9.95 per hour of Internet use, with 25 cents for each additional minute, or paying a flat rate that varies depending on the length of the flight. For unlimited access, passengers will pay \$14.95 for flights three hours or less, \$19.95 for flights three to six hours and \$29.95 for long-haul flights longer than six hours.

### **Big bucks for Boeing**

By 2010, when Boeing thinks the market for passenger Internet service will mature, the aerospace company expects Connexion to generate between \$2.5 to \$3 billion annually. "We think we can capture roughly between 4,500 and 5,000 of the 14,000 aircraft that will be flying at that time," a spokesman said.

In addition to Lufthansa, Boeing has reached definitive agreements with Scandinavian Airlines System (SAS), Japan Airlines System Co. Ltd. and All Nippon Airways Co. The spokesman said the company is close to reaching deals with Singapore Airlines and China Airlines.

There are still no U.S.-based carriers to sign on for the new service, but Boeing said that will change very soon. "There's been a real uptick in domestic interest in the last six to eight months," the spokesman said. "U.S. airlines are moving away from day-to-day survival," and starting to look at new ways to generate sales and compete with their rivals, he said.

Boeing is in talks with "most of the major" U.S. airlines, and expects some decision-making in the near future, he said, declining to say which carriers have expressed interest in the new service.

Some domestic carriers, including Elk Grove Township-based United Airlines, have opted for a different service provider. United, a unit of bankrupt UAL Corp., in November began offering e-mail service from Verizon Airfone, a unit of New York-based Verizon Communications Inc. (ChicagoBusiness.com, Nov. 11).

From Forbes, available at

[http://www.forbes.com/technology/networks/2004/06/17/cz\\_qh\\_0617wifi.html](http://www.forbes.com/technology/networks/2004/06/17/cz_qh_0617wifi.html) (last visited on Sep. 7, 2004)

## Coffee, Tea Or Broadband

Quentin Hardy, 06.17.04, 3:00 PM ET

SILICON VALLEY - Most [Wi-Fi](#) hot spots offering wireless high-speed Internet connections have failed to find a sustainable business model, since it's hard to make people pay for something they often get for free. Fee-based Wi-Fi on airplanes, however, looks like it is taking off.

Last month, German carrier Lufthansa began offering on-board Wi-Fi on flights between Munich and Los Angeles, charging \$30 for a connection lasting the duration of the flight. Asian destinations are to be added soon. **Boeing** (nyse: [BA](#) - [news](#) - [people](#)), which installed the gear and runs the service, thinks it can eventually put the service on 4,500 of the world's 13,500 commercial jets.

"We believe we can generate business of \$500,000 per airplane per year, for revenues of about \$2 billion," says Scott Carson, chief executive of Connexion by Boeing, the aerospace giant's in-flight Internet group. Carson says Boeing plans to charge \$30 for flights longer than six hours, \$19.95 for flights of four to six hours, \$14.95 for shorter flights and \$9.95 for a 30-minute trial.

No one gets prices like that on the ground, of course. Two days after Lufthansa initiated its service, Cometa Networks, a national purveyor of Wi-Fi hot spots, shut down, citing insufficient investor returns. Cometa had been formed in December 2002 by a group including **AT&T** (nyse: [T](#) - [news](#) - [people](#)), **IBM** (nyse: [IBM](#) - [news](#) - [people](#)) and **Intel** (nasdaq: [INTC](#) - [news](#) - [people](#)). Cometa's partners included **McDonald's** (nyse: [MCD](#) - [news](#) - [people](#)), which offered a free hour of Wi-Fi for the price of a meal, and book retailer **Barnes & Noble** ([BKS](#)), which charged \$11.95 a month.

The onboard connection is not as fast as a land hot spot, either. Boeing figures it delivers 20 megabits a second from the ground to the aircraft, and one megabit a second back to the ground. Since the service is shared, individuals get about 100 kilobits a second each.

A long plane flight full of anxious business travelers, however, is a very different marketplace from McDonald's. "People on planes want full Internet access--not just e-mail--and they're willing to pay for it," says Henry Harteveldt, travel analyst at Forrester Research. "Airlines, which pay probably \$500,000 a plane to get Wi-Fi, won't do this if only 2% of people will pay. Our research shows something like 38% of frequent travelers will pay for this." For its part, Boeing anticipates running a profitable business on an uptake rate of 6% of total travelers.

For Boeing, running a consumer service company is a break from tradition as well. Discounting the brief period after World War II when underutilized machine shops turned out bedroom furniture, this is Boeing's first consumer business. Carson says Boeing contracted out virtually all the hardware--the onboard antennas linking the plane to a satellite, which then feeds data back and forth with a terrestrial [server](#), comes from Japan's Mitsubishi Electric, and the internal Wi-Fi gear is from **Cisco Systems** (nasdaq: [CSCO](#) - [news](#) - [people](#)). Boeing wrote software, managed



[Can Wi-Fi Save Lives?](#)

[In Pictures: Gadgets & Gizmos](#)

[Profiting From Wi-Fi](#)

[Sky-High Wi-Fi](#)

**Commentary:** [The Great Disruptor](#)

**Poll:** [Where Do You Use Wi-Fi?](#)

**Video:** [Behind The Wi-Fi Explosion](#)

the project and interacted with some 22 airlines, most of which Carson expects to sign up over time.

"The airlines asked us to charge the customers," he says. "They said, 'If we have it ourselves, we'll find a way to charge nothing.'"

Users are already employing onboard Wi-Fi to make Internet phone calls, likely killing the modest returns from the expensive onboard phones. Carson expects **Verizon Communications** (nyse: [VZ](#) - [news](#) - [people](#)) to move its onboard phone service to Wi-Fi.

In addition to consumer use, the airlines are planning to use Wi-Fi for onboard medical diagnostics, weather updates, and in-flight equipment monitoring, so ground mechanics arrive at a flight knowing what needs to be serviced.

From The Wall Street Journal, available at  
<http://webreprints.djreprints.com/974390656496.html> (last visited on Sep. 7, 2004)

## MIDDLE SEAT MAILBOX

By SCOTT McCARTNEY



Dow Jones WebReprint Service®

April 6, 2004

# In Search of an In-Air Connection

## Readers Are Willing to Pay Airlines For a Good Web Connection in the Sky

If airline executives needed a little encouragement, here it is: Middle Seat readers want to stay connected when traveling, and they are willing to pay for a good Internet connection.

Last week's column looked at the two leading in-flight data links, one that's cheap for airlines and provides pricey, hard-to-use in-flight e-mail through seat-back telephones, the other a soon-to-be-launched satellite-based service that offers broadband Internet access through wireless connections in the cabin. The e-mail system is cheap for airlines but of limited utility; the Wi-Fi broadband system is expensive for airlines to install, but more useful for passengers.

A few U.S. airlines — United, Continental and US Airways — offer the in-flight e-mail system through their Verizon Airfones. But while several European and Asian carriers are pushing ahead with the broadband **Connexion by Boeing** service, no U.S. carriers have ponied up. Not that they aren't interested — United, American and Delta Air were all early investors in the Boeing venture, but pulled out after the 2001 terrorist attacks.

Those airlines and others need to do something: Discount carriers are entertaining customers with satellite television and radio services, while bigger airlines are still showing old movies on small screens, or nothing at all.

Live TV is great, particularly for leisure customers. Business travelers, however, want their time to be productive, and that means working, not watching ESPN. They want to get to the Internet, get to their e-mail and bring the office onboard the airplane. Hotels have done it, and readers clearly want airlines to join the digital age as well. And the clunky in-flight e-mail system offered through Verizon by Tenzing Communications, which is backed by Airbus, won't cut it — at least not without big-time improvements. Readers had several complaints about it, starting with how difficult it is to use to its per-kilobyte pricing. (Some comments have been edited.)

Thomas Kowall recently tried to use the Tenzing system on recent flights between Paris and the U.S.: "Instructions buried at the back of the in-flight magazine. No useful way for me to anticipate cost because have no way to estimate number of KBs that would be transmitted. Not traveling with cord to connect laptop to phone. What am I willing to pay? On 11-12 hour CDG-SFO flight, could do the better part of a day's work. Value to me, delighted to pay \$10-\$20, willing to pay \$20-\$30. But what I really want is ease of use. How about a flat fee, and Wi-Fi?"

Dr. Kowall notes that the current situation with airlines is somewhat similar to that with hotels five years ago when they were struggling to provide Internet access. "The stages were, 'It's too expensive,' 'We'll install in our Business Center,' and now plug-and-play in-room. Marriott in Nagoya has a system that is exactly what I want in-flight. It's easy to use, works reliably, plug-and-play. Cost? None — built into room charge. So an airline business model already exists."

For airlines, building anything into ticket prices is wishful thinking since most markets are highly competitive, and both business and leisure fares continue to come down. But I do think that for the most-prized customers of all — the road warriors — there is much to be gained for an airline that brings the Internet onboard successfully. Being able to stay connected on a six-hour, cross-country flight could easily sway airline choices in heavily traveled business markets. Ultimately, for airlines that cater to business travelers, this stuff is going to be a necessity, not an option.

Thomas Baker: "I'm a frequent flier and routinely ignore movies and TV in order to catch up on work-related reading, or to use my computer. I find my frequent coast-to-coast flights among the most-productive periods of any money. I can only imagine that the addition of e-mail connectivity and Web access would enhance that productivity. In fact, I would be willing to pay for a flight that offered it as a premium service (to me, JetBlue and Frontier are OK for leisure travelers, but satellite TV is a huge productivity destroyer). In fact, I would even go out of my way to take a different flight if it meant having the service."

Les Kratter: "One more-important point is that many larger organizations are moving to Virtual Private Network Connections, a private pipe through the Internet. This will not work on the Verizon service. ... I would use the high-speed service in a flash if it actually worked. This price is not much more than some hotels."

Howard Alt: "I wouldn't change my carrier choice because of the availability of wireless Internet, but they'd almost certainly get the incremental \$30 from me for each flight if the service was available."

Still, that may be too expensive for some road warriors. Robert W. Meyer: "When someone offers wireless broadband for \$10 per trans-Atlantic flight, sign me up."

Once they get a bit further past their financial crises, I expect to see some U.S. airlines take the plunge on Internet access. But some travelers have other priorities.

C.F. Ward: "Throw away both services and give me two more inches of leg space. They are just trying to divert my attention from an awful seat."

From Computerworld, available at <http://www.computerworld/mobiletopics/mobile/wifi/story/0,10801,91619,00.html> (last visited on Sep. 7, 2004)

## **Boeing sets pricing for in-air Internet access**

### **Lufthansa plans to launch its in-air service this spring**

News Story by Bob Brewin

MARCH 25, 2004 ([COMPUTERWORLD](#)) - The Boeing Co. has set the pricing for its airline passenger high-speed Internet service at \$29.95 for unlimited use on long-haul flights of six hours or more. And it will charge \$19.95 for flights lasting between three and six hours. Analysts said the fee schedule would likely attract business travelers.

Boeing, based in Chicago, also said it would offer a metered pricing option for its Connexion by Boeing service starting at \$9.95 for 30 minutes and 20 cents a minute thereafter.

Deutsche Lufthansa AG in Bonn is expected to launch the service this spring on flights from Germany to multiple international destinations.

Boeing has leased transponders on satellites that provide global coverage for the Connexion service, according to spokesman Terrance Scott. These satellites provide 20Mbit/sec. download speeds to the aircraft and 1Mbit/sec. upload speeds.

Passengers will be able to connect to the service from laptop or handheld computers over 802.11b Wi-Fi access points installed in the aircraft. Those access points will provide raw data rates of 11Mbit/sec., Scott said.

All of Connexion's airline customers, which include the Scandinavian Airlines System division of SAS AB, Japan Airlines System Corp., All Nippon Airways Ltd. and Singapore Airlines Ltd., will initially offer the service to passengers through Wi-Fi, with some carriers adding Ethernet connections to seats at a later date.

Alan Reiter, an analyst at Wireless Internet & Mobile Computing in Chevy Chase, Md., said he believes the service will be "a winner for airlines because a lot of business travelers will jump on this" rather than spend hours of downtime on a plane.

Chris Kozup, a Boston-based analyst at Meta Group Inc., concurred, saying his studies have shown that business users are more willing to pay for Internet service in environments where they are captive and have few choices for a connection to their e-mail and other Internet services.

Kozup said the cost of the Connexion service is minuscule compared with the price of a ticket in the front of the plane, where a first-class seat from the U.S. to London on the United Air Lines unit of UAL Corp. can run over \$10,000.

Carl Oppedahl, a patent attorney at Oppedahl & Larson LLP in Dillon, Colo., said he would "gladly pay" the Connexion prices for an Internet connection but would like to see the service expanded to all flights, domestic as well as international.

From Boeing News Release, available at [http://www.boeing.com/news/releases/2004/q3/nr\\_040823j.html](http://www.boeing.com/news/releases/2004/q3/nr_040823j.html) (last visited on Sep. 7, 2004)

## **iPass Wi-Fi Network Gets its Wings with Connexion by Boeing**

### **Wi-Fi access in the sky closes productivity gap for the more than half-million business travelers who use the iPass network**

**REDWOOD SHORES, Calif., and SEATTLE, Wash - August 23, 2004**

[Connexion by Boeing](#), a business unit of The Boeing Company (NYSE:BA), and iPass Inc. (NASDAQ: IPAS) today announced an agreement to deliver iPass enterprise customers secure in-flight Wi-Fi Internet connectivity. Through the agreement iPass users will have access to the Connexion by BoeingSM mobile Internet service through the iPass Global Broadband Roaming network. Now, enterprise IT managers and CIOs can provide their mobile workers with a near-seamless, high-speed wireless experience to manage their time at hotels, airports and now on airplanes – more productively. This agreement marks Connexion by Boeing’s first contracted Wi-Fi enterprise access provider.

Connexion by Boeing, the only real-time, high-speed connectivity service available to commercial airline passengers and iPass, which operates the world’s largest Wi-Fi roaming network with over 11,000 active hotspots in 33 countries, complement each other perfectly. Through the iPass Global Broadband Roaming (GBR) network and the Connexion by Boeing service, the more than 528,000 distinct monthly iPass users will be able to connect to their corporate networks, send and receive emails with attachments, access files and business applications and surf the entire Internet while in the air. This partnership combines two great services to benefit the enterprise and the corporate ‘road warrior,’ changing the way business is conducted on the road and, now, in the air.

“Wi-Fi, for business travelers, will rival extra legroom as a ‘must-have’ airline amenity,” said John Yunker, an analyst with Byte Level Research. “iPass and Connexion by Boeing make a good fit. Connexion by Boeing provides Wi-Fi in the sky while iPass provides start-to-finish connectivity for the business traveler across thousands of locations.”

Connexion by Boeing has agreements with major air carriers that operate at airports serviced by iPass including Copenhagen Airport, Narita/New Tokyo Airport and Changi Airport. In total, iPass offers broadband access at 121 airports in 21 countries – including 49 of the world’s busiest as measured by passenger volume, making the Connexion by Boeing service an important link in a continually growing chain of broadband connectivity designed for mobile enterprise users.

“Having a proven and secure method for enterprise travelers to connect to real-time high-speed Internet-based services is critical for doing business in a global environment,” said Connexion by Boeing Vice President of Marketing and Direct Sales David Friedman. “Our agreement with iPass addresses that need and provides us with a proven market partner that will help ensure the Connexion by Boeing service is readily available in key markets and airports served by our airline customers. As Wi-Fi providers in the transportation and travel sectors have found, there are tremendous numbers of business travelers who rely on their corporate IT organization to equip them with advanced connectivity capabilities and we want to be a part of that solution.”

The Connexion by Boeing network will now enter the iPass Enterprise Ready certification program, where it will be certified by iPass as Enterprise Ready by passing a rigorous testing regimen to ensure service availability, as well as interoperability with policy and security tools, such as virtual private networks, personal firewalls and virus protection.

“As a frequent long-haul flier myself, no one will be more thrilled to see the Connexion by Boeing service integrated with the iPass GBR network,” said Anurag Lal, vice president of business development at iPass. “Some of the flights I’ve taken last well over 12 hours, so increased productivity in the air is greatly needed. Users of this service will no longer have to wait the length of their flight – a full business day – for the vital business information that can help win that important deal or address a critical business issue. The iPass and Connexion relationship brings the industry closer to ultimate goal of anywhere, anytime secure connectivity.”

#### **About Connexion by Boeing**

Connexion by Boeing, recipient of the 2003 World Travel Award for World's Leading High-Speed In-flight Internet Services Provider, brings high-speed Internet, data and entertainment connectivity to travelers via a broadband connection to the aircraft. Connexion by Boeing has definitive agreements with Lufthansa, Scandinavian Airlines System, Japan Airlines, ANA and Kingdom Holding Co. to equip their long-haul aircraft with the service. In addition, Singapore Airlines, China Airlines and Korean Air have announced their intent to install the Connexion by Boeing system on their long-range aircraft. Connexion by Boeing also offers a high-speed connectivity solution for the business aviation and maritime markets. For more information, please visit [www.connexionbyboeing.com](http://www.connexionbyboeing.com).

#### **About iPass**

iPass Inc. (NASDAQ: IPAS) delivers enterprises simple, secure and manageable connectivity services for mobile workers as they move between office, home, and remote locations. iPass combines its global network of dial-up, Ethernet and the world's largest Wi-Fi footprint with support for campus wireless LANs and home broadband connections to deliver a unified and comprehensive solution. The award-winning iPassConnect™ user interface, centralized management, leading security features and powerful policy enforcement make iPass services the choice of hundreds of Global 2000 corporations including General Motors, Hershey Foods and Underwriters Laboratories. Founded in 1996, iPass is headquartered in Redwood Shores, Calif., with offices throughout North America, Europe and Asia Pacific. For more information visit [www.ipass.com](http://www.ipass.com).

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From Boeing News Release, available at [http://www.boeing.com/news/releases/2004/q2/nr\\_040511j.html](http://www.boeing.com/news/releases/2004/q2/nr_040511j.html) (last visited on Sep. 7, 2004)

## **The New Era of Inflight Connectivity Is Here: Connexion by Boeing and Lufthansa Announce the World Premiere of Airborne Internet**

**SEATTLE and MUNICH, Germany, May 11, 2004** – [Connexion by Boeing](#), a business unit of The Boeing Company (NYSE:BA), and Lufthansa German Airlines today announced that passengers on LH 452, flying on May 17, 2004 from Munich, Germany, to Los Angeles, Calif., will be the first in the world to experience real-time, WiFi-based, high-speed Internet connectivity on a commercial flight route.

The Connexion by Boeing<sup>SM</sup> service comes to life in partnership with Lufthansa's FlyNet® portal onboard Lufthansa's A340-300 aircraft. Via the FlyNet® portal travelers get free updates to current news, travel information, shopping possibilities and frequent flyer details, whereas the Connexion by Boeing fee-based service allows travelers to surf the Worldwide Web, send and receive emails with attachments and set up a secure data connection via a Virtual Private Network (VPN) to their corporate intranets or mail servers.

"In close partnership with Lufthansa, our global launch customer, we have now achieved our shared vision of giving the Internet wings," said Connexion by Boeing President Scott Carson. "This is the historical first step for Connexion by Boeing to use available technology to affordably enhance the way people on the move communicate, work and entertain themselves."

Connexion by Boeing will offer the service to passengers for a flat rate of US \$29.95 dollars for the entire flight or a metered option of US \$9.95 for 30 minutes and 25 cents per minute thereafter.

The Connexion by Boeing service has been installed so far on 5 aircraft in Lufthansa's long-haul fleet. Lufthansa has committed to install the service on all of the airline's long-haul aircraft and will offer real-time, high-speed connectivity to passengers traveling on all long-haul routes from Munich and Frankfurt by 2006.

### **About Connexion by Boeing**

Connexion by Boeing, recipient of the 2003 World Travel Award for World's Leading High-Speed In-flight Internet Services Provider, brings high-speed Internet, data and entertainment connectivity to travelers via a broadband connection to the aircraft. Connexion by Boeing has definitive agreements with Lufthansa, Scandinavian Airlines System, Japan Airlines, ANA and Kingdom Holding Co. to equip their long-haul aircraft with the service. In addition, Singapore Airlines, China Airlines and Korean Air have announced their intent to install the Connexion by Boeing system on their long-range aircraft. Connexion by Boeing also offers a high-speed connectivity solution for the business aviation and maritime markets. For more information or to subscribe to the Connexion by Boeing e-newsletter, please visit [www.connexionbyboeing.com](http://www.connexionbyboeing.com).

From Boeing News Release, available at [http://www.boeing.com/news/releases/2004/q2/nr\\_040510j.html](http://www.boeing.com/news/releases/2004/q2/nr_040510j.html) (last visited on Sep. 7, 2004)

## **Infonet and Connexion by Boeing Announce Plans to Deliver "Wi-Fi in the Sky" Capabilities to MobileXpress™ Customers**

### **Agreement Will Make Infonet the First Global Managed Network Service Provider to Offer Secure In-Flight High-Speed Internet Access**

**El Segundo, Calif. and Seattle** – May 10, 2004 – Infonet Services Corporation (NYSE:IN), a leading provider of global communications services for multinationals, and [Connexion by Boeing<sup>SM</sup>](#), a business unit of The Boeing Company (NYSE:BA), today announced plans to deliver in-flight, real-time, high-speed Internet capabilities as part of Infonet's MobileXpress™ service portfolio.

MobileXpress, Infonet's next-generation mobile/wireless service, expands its customer's remote access reach to more than 120 countries, including secure access to thousands of Wi-Fi hotspots in airports, hotels and public venues around the world.

As part of a signed Memorandum of Understanding (MOU), Infonet will expand the geographic reach of its wireless services to include those airlines serviced by the Connexion by Boeing real-time, high-speed Internet service. In linking the two service offerings, airline passengers who have subscribed to MobileXpress will be able to use their existing accounts to gain the benefits of secure, seamless, real-time Internet access when in flight. According to Forrester Research, "In flight broadband Internet access is a highly desirable amenity, especially among frequent business travelers, with research showing 38 percent of frequent travelers are willing to pay at least \$25 per flight for full, high-speed access to the Internet and their corporate network."

"The addition of the in-flight service addresses a key venue being sought by today's mobile workers," said Marc Patterson, Vice President and Managing Director of Infonet's Mobility Services. "By delivering the Connexion by Boeing capabilities as part of the MobileXpress service portfolio, end-users will increase their flexibility, while IT organizations retain the benefits of strong security, consolidated management and unified invoicing. The service offering is exciting and highly complementary to Infonet's secured mobility solutions, furthering our mission to provide secure access anytime, anywhere."

Given the global appeal of the new capabilities, Infonet plans to offer the integrated service offering to multinational customers worldwide later this year, with service trials initiating in the summer. In addition, Infonet is scheduled to grow its number of active "on the ground" Wi-Fi hotspots to more than 10,000 by the end of the year. By combining this strong on-the-ground coverage with Connexion by Boeing's in-flight service, MobileXpress will be able to provide the type of ubiquitous, on-demand remote Internet and VPN access that mobile executives are increasingly demanding.

"Through our planned associate service provider agreement with Infonet, the Connexion by Boeing service will become more accessible to passengers on commercial flights throughout the

world," said Connexion by Boeing Vice President of Marketing and Direct Sales, David Friedman. "Infonet's global distribution model and complementary services will appeal to business and leisure travelers as well as corporate organizations looking to balance end-user simplicity and security with seamless manageability."

#### **About Connexion by Boeing**

Connexion by Boeing, recipient of the 2003 World Travel Award for World's Leading High-Speed In-flight Internet Services Provider, brings high-speed Internet, data and entertainment connectivity to travelers via a broadband connection to the aircraft. Connexion by Boeing has definitive agreements with Lufthansa, Scandinavian Airlines System, Japan Airlines, ANA and Kingdom Holding Co. to equip their long-haul aircraft with the service. In addition, Singapore Airlines, China Airlines and Korean Air have announced their intent to install the Connexion by Boeing system on their long-range aircraft. Connexion by Boeing also offers a high-speed connectivity solution for the business aviation and maritime markets. For more information, please visit [www.connexionbyboeing.com](http://www.connexionbyboeing.com).

#### **About Infonet**

Infonet Services Corporation, known for its quality of service, is a leading provider of managed network communications services for nearly 3,000 multinational entities. Employing a unique consultative approach, Infonet offers integrated solutions optimizing the complex relationship between enterprise applications and the global network. Extensive project management capabilities are the foundation for the services and solution offerings (broadband, Internet, intranet, multimedia, videoconferencing, wireless/remote access, local provisioning, application and consulting services) positioning Infonet as a single-source partner for multinational entities. In particular, Infonet IP VPN solutions offer multinationals a unique combination of Private and Public IP services as well as a full set of Managed Security and Mobility Services.

Rated "Best in Class" overall in Telemark's survey of Global Managed Data Network Services, Infonet has also won "Best Customer Care" and "Best Carrier" at the World Communication Awards. Founded in 1970, Infonet owns and operates The World Network ®, accessible from more than 180 countries, and provides local service support in over 70 countries and territories.

Infonet's stock is traded on the New York Stock Exchange under the symbol IN. Additional information about the company is available at [www.infonet.com](http://www.infonet.com).

**Originally filed by Verizon Airfone on Sep. 21, 2004 as a supplement to its filing of Sep. 7, 2004 regarding satellite competition in the Air-Ground services market.**

From ComputerWorld, available at

<http://www.computerworld.com/mobiletopics/mobile/story/0%2C10801%2C95982%2C00.html?f=x68> (last visited on Sep. 20, 2004).

## **Airbus tests in-flight mobile phones**

It expects to offer the service on its planes by 2006

News Story by John Blau

SEPTEMBER 16, 2004 ([IDG NEWS SERVICE](#)) - European plane maker Airbus SAS said yesterday that it has successfully completed the first in-flight trial of mobile phones and infrastructure equipment based on Global System for Mobile Communications (GSM) technology.

The trial, which took place aboard an Airbus A320 flight-test plane, culminated a two-year research project supported by the European Commission aimed at testing wireless technology for in-flight mobile phone and computing services.

Airbus, which was tight-lipped about the trial previous to its launch, expects to have the technology installed in its aircraft beginning in 2006. A key objective is to provide service at affordable prices, the company said.

Substantial demand for in-flight mobile phone service exists, according to a survey at London's Heathrow and Gatwick airports by the Norwegian phone company Telenor Satellite Services AS and Arinc Inc. Almost half of the 1,200 business and leisure travelers interviewed for the survey said they would like mobile phone access in flight.

The Airbus tests involved communications to and from several types of GSM mobile phones on the plane to mobile and fixed telephones on the ground, and to another mobile phone onboard, Airbus said. Signals from the mobile phones were received by an onboard base station, then transferred to an onboard server that forwarded them through the Globalstar Telecommunications Ltd. satellite communications network to the ground and finally routed to ground-based phone networks.

Also tested were several wireless computing services, such as third-generation based on Wideband Code Division Multiplex Access technology, wireless LAN using the Wi-Fi standard 802.11 and short-range Bluetooth.

Tested services included GSM telephony, Web browsing, e-mail and connectivity to a virtual private network. An onboard intranet was demonstrated, as were PDAs for crew use.

The Wireless Cabin project is being led by the German Aerospace Center. Partners include Inmarsat Ltd., Siemens AG and LM Ericsson Telephone Co.

From Telenor press release, available at [http://presse.telenor.no/PR/200406/949526\\_5.html](http://presse.telenor.no/PR/200406/949526_5.html) (last visited on Sep. 20, 2004).



## Press releases

Telenor, 20 June, 2004

### **Telenor and ARINC Introduce a Breakthrough: Mobile Phone Service for Airline Passengers**

(Annapolis, Maryland, USA, and Oslo, Norway June 20, 2004) ARINC Incorporated and Telenor ASA will soon market new technology to allow airline passengers to use personal mobile phones aboard commercial flights. The companies formed an alliance in 2003 and this week revealed their plans at the Inmarsat Conference in Montreal, Canada.

The new technology allows safe and seamless usage of today's popular GSM mobile phones on any commercial aircraft flight.

"Passengers will be able to make and receive mobile phone calls, and send or receive text messages just as they do on the ground," stated Graham Lake, ARINC Vice President and Managing Director, Europe, Middle East and Africa. "It is not a question of whether mobile phones will be used on aircraft. It is merely a question of when."

The new technology initially will leverage the classic Inmarsat SATCOM systems many airlines have already invested in. These systems are already deployed on over 3000 aircraft worldwide. The system is also flexibly designed to accommodate evolving technologies such as the Inmarsat Swift/BGAN and Ku broadband systems such as ARINC's SKYLink™.

Engineers from Telenor, ARINC and representatives of the airline market have worked to expand the area of utilization of GSM-standard mobile phones.

"This is part of our joint strategy to carry out more market oriented research and development," stated Berit Svendsen, Telenor CTO. "We recognize the use of GSM phones on board aircraft is inevitable in the next 12-18 months and have positioned our alliance and technology at the forefront of these developments. We view the ability to literally 'roam' onto an aircraft, and seamlessly use a mobile phone for voice and SMS messaging, as a near-term reality. We will provide a comprehensive Aero-GSM fleet solution without the need for a significant investment in communications infrastructure."

ARINC and Telenor will offer the airlines a comprehensive, one-stop implementation package. The technology will address the airspace as a virtual GSM country, simplifying the mobile addressing and connectivity during flight. Current terrestrial GSM roaming charges are being used for end-user pricing models.

With headquarters in Oslo, Norway, Telenor is an international provider of high quality telecommunications, data, and media services, with expanding operations in international mobile and satellite communications. Telenor is one of Norway's largest companies with 2003 revenues of approximately NOK 53.1 billion (approximately U.S. \$7.6 billion) and a

workforce of 19,450 located in Norway and abroad. Telenor is listed on the Oslo Stock Exchange (TEL) and the NASDAQ in New York (TELN). For more information, visit the Telenor web site at [www.telenor.com](http://www.telenor.com).

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From ARINC press release, available at <http://www.workunplugged.com/news/2004/06-17-04.html> (last visited Sep. 20, 2004).



## **ARINC and Telenor Introduce a Breakthrough: Cell Phone Service for Airline Passengers**

June 17, 2004

Annapolis, Maryland, USA, and Oslo, Norway—ARINC Incorporated and Telenor ASA will soon market new technology to allow airline passengers to use personal mobile phones aboard commercial flights. The companies formed an alliance in 2003 and this week revealed their plans at the Inmarsat Conference in Montreal, Canada.

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Release: 04-113

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From ARINC press release, available at <http://www.arinc.com/news/2004/09-13-04.html> (last visited Sep. 20, 2004).



### **International Passengers Want Mobile Phones in Flight, Research by ARINC and Telenor Shows**



September 13, 2004

Annapolis, Maryland, USA—Nearly half of all international business fliers would prefer to travel on airlines that allow the use of mobile phones in flight. That is the emphatic conclusion from a survey of 1,200 international business and leisure travelers at two of the world's busiest airports—London Heathrow and Gatwick. The research was conducted for Telenor and ARINC Incorporated.

The companies are marketing an inflight GSM mobile phone service for passengers—ARINC-Telenor Mobile Connectivity™. They plan to demonstrate their system at the World Airline Entertainment Association (WAEA) in Seattle, WA, Sept. 21-24.

“Our research shows a pent-up passenger demand for in-flight mobile service,” stated Graham Lake, ARINC Vice President and Managing Director, Europe, Middle East and Africa. “Fully 83% of business fliers now carry their mobile phones in flight, while about half carry a laptop computer. The world today has more than 1.5 billion mobile phone subscribers, with almost 75% using GSM technology.”

Many planes could be readily equipped with the ARINC-Telenor service because more than 1,900 already have the classic Inmarsat hardware needed. ARINC and Telenor are offering airlines a comprehensive, one-stop implementation package.

The technology allows passengers to use personal GSM mobile phones in flight just as on the ground—and without any enrollments, sign-ups, credit cards, or dialing of extra digits. The system treats the world's airspace just like calling another country. Passengers are charged a reasonable fee, similar to international roaming rates on the ground. Calls are transparently billed to passengers' mobile accounts by their own cellular providers.

“Passengers can roam onto this system as easily as visiting a new country. They can make calls, accept incoming calls, and send or receive text messages,” said Berit Svendsen, chief technical officer for Telenor. “Close to a third of business passengers found this concept very appealing, and as much as 28% of all passengers were willing to pay as much as three to six dollars per minute for inflight mobile service. More than half of all respondents would send and receive text messages as well.”

The research was conducted in June-July 2004 by IMDC (Inflight Management Development Centre), an independent UK-based company that specializes in management support services for the in-flight business sector.

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Release: 04-125c

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From ARINC press release, available at <http://www.arinc.com/news/2004/08-24-04.html> (last visited Sep. 20, 2004).



## **ARINC Will Show New Broadband Internet Solution for Commercial Aircraft at WAEA**

August 24, 2004

Annapolis, Maryland, USA—Building on its successful [SKYLink<sup>SM</sup>](#) satellite broadband solution for business aircraft, ARINC Incorporated today announced it will roll out a high-capacity satellite broadband system for commercial airlines. ARINC plans to demonstrate its new Commercial SKYLink<sup>SM</sup> system for attendees at the World Airline Entertainment Association (WAEA) conference in Seattle, September 21-24.

ARINC is holding active discussions on SKYLink with several potential customers. “Four domestic airlines have already expressed interest, and we’re in a second round of talks with three of them,” stated Robert Thompson, Senior Director, ARINC Satellite Services. Details and preliminary pricing of the system will be available at WAEA.

“SKYLink for commercial aircraft will be smaller, cheaper, lighter and more capable than currently available broadband systems,” stated Thompson.

ARINC pioneered Ku-band satellite broadband for business jets in 2003 with a 35-pound SKYLink avionics and antenna package. SKYLink satellite coverage went live over North America in April 2004, and SKYLink-equipped business jets now have 2-way broadband connectivity from coast to coast.

The commercial airline SKYLink system uses a larger, fuselage-mounted antenna to meet the bandwidth requirements of expected passenger applications such as live TV and high-speed Internet. ARINC will offer a range of configuration options including wireless 802.11a/b/g for the passenger cabin. SKYLink broadband also has the potential to deliver many enhanced types of services for the flight deck.

“Carriers thinking about broadband can keep all their options open with SKYLink,” said Thompson. “We have optimized the design for retrofit, and unlike rigid OEM approaches we have kept SKYLink a highly configurable system to meet any foreseeable fleet requirements. We can even deliver the SKYLink business jet solution for low-cost carriers who want to minimize the cost and footprint of broadband.”

Commercial SKYLink offers a bandwidth of 5 Mbps to the aircraft, and 256 Kbps off-aircraft. The business jet version is rated at about half of that. Both systems use the SES Americom<sup>TM</sup> Ku-band satellite constellation, the same system currently providing SKYLink coverage of North America. A coverage expansion is planned in 2005 to

include the North Atlantic routes, Europe, and the Middle East.

ARINC plans to conduct flight testing and to pursue the required Supplementary Type Certificates (STCs) with selected carriers in the next 14 months. The first Commercial SKYLink operational installations are anticipated in late 2005.

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Release: 04-125a

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From ARINC web site, available at [http://www.arinc.com/products/business\\_aviation\\_services/skylink.html](http://www.arinc.com/products/business_aviation_services/skylink.html) (last visited Sep. 20, 2004).

### **SKYLink<sup>SM</sup> by ARINC Direct<sup>SM</sup>**

SKYLink<sup>SM</sup> by ARINC Direct<sup>SM</sup> is the latest in-flight broadband satellite service for business aircraft passengers.

SKYLink allows business aviation passengers to stay connected even at 47,000 feet. At speeds in excess of 3 megabits per second (Mbps), it's about 6 times faster than a high-speed cable modem.

Designed with business aircraft users in mind, SKYLink is faster, smaller, lighter, more efficient, and less costly than other airborne satellite systems. And it's easy to use. Just plug a network cable from your laptop into a jack on the plane and log on to the network. The process becomes even simpler if you have a wireless connection or a preconfigured server.



### **SKYLink Specifications**

The SKYLink antenna is tail-mounted and fits on larger business aircraft including, GIV, GIV-SP, G400, GV, G500, G550, Citation X, Falcon 900, and Global Express.

The SKYLink equipment is compact and lightweight. The tail-mounted dish antenna measures less than 12 in. in diameter. The satellite terminal, including antenna, weighs less than 40 lbs. ARINC Direct is currently working with original equipment manufacturers (OEMs) to make SKYLink a standard option on any new aircraft, but will also retrofit the necessary equipment to existing aircraft.

### **Connection Speed**

SKYLink has an aircraft-to-ground (return) data rate of 128 kilobits per second (kbps) and a ground-to-aircraft (forward) data rate varying between 512 kbps and 3.5 Mbps. A test site is also available so that users can test the SKYLink system performance and verify their connection speed.

### **Coverage**

The [SKYLink coverage area](#) includes the continental United States. Operating on a Ku-band satellite constellation, SKYLink coverage begins when the system is turned on and continuously operates during taxi, takeoff, flight, and landing. System performance on the ground can be affected if buildings or severe weather block the aircraft's view of the satellite.

Future expansion of the system is likely to offer end-to-end connectivity to any region in the world—including Latin America, Europe, and Asia, where business aircraft travel is rapidly expanding.

If you would like to receive additional information about ARINC Direct Business Aviation Services, please complete our [information request form](#).

From ARINC web site, available at [http://aero.inmarsat.com/services/swift\\_64.aspx?top\\_level\\_id=3&sub\\_level\\_id=1](http://aero.inmarsat.com/services/swift_64.aspx?top_level_id=3&sub_level_id=1) (last visited Sep. 20, 2004).



## Swift64

Swift64 is Inmarsat's latest service offering for airlines, business aviation and government users. In its basic form it provides enough data bandwidth for applications such as high-quality voice, e-mail, Internet and intranet access, and videoconferencing.

Techniques such as channel bonding and data acceleration can boost the effective data rate to beyond 0.5Mbit/sec, and the service is fully compatible with future developments that would produce broadband performance.

Other advantages include the ability of Swift64 avionics to work through the high-gain antennas already fitted on most long-range airline and business aircraft and large numbers of government aircraft.

Two types of data service - Mobile ISDN and IP-based Mobile Packet Data Service (MPDS) - are globally available through Swift64. Each method has its own advantages - the high quality and speed of ISDN, the cost-effectiveness and flexibility of IP - and the choice depends on what the user is aiming to achieve.

Mobile ISDN provides full-time use of a high-capacity channel capable of carrying a constant data stream. Typical applications include the downloading of large files of material such as compressed video or graphics, which occupy all the available bandwidth for significant amounts of time, or any in which speed is paramount, such as the transmission of surveillance video.

The service provides direct and efficient error-free connection with terrestrial ISDN-compatible circuits and systems, allowing airborne local-area networks to be readily integrated into ground-based private networks.

MPDS slices each file into small IP data packets, addresses them and sends them in bursts on a channel being shared by other users. On delivery, the packets are reassembled to form the original file. Applications include e-mail and Internet and intranet access, which involve brief bursts of communication followed by periods of inactivity.

### Mobile ISDN and MPDS compared

|                             | Mobile ISDN  | MPDS   |
|-----------------------------|--|--|
| <b>Typical applications</b> | Large file transfer (audio, graphics, photographs, video clips), videoconferencing, video streaming, store-and-forward video | E-mail, secure access to private networks, Web access, database queries, small/medium-size file transfer |
| <b>Charging</b>             | User pays per minute of connection time  | User pays for the amount of data that  |

|                               |   |   |
|-------------------------------|---|---|
|                               |   | passes over the link; connection can be "always on" at no extra charge  |
| <b>Main service features</b>  | Two-way 64kbit/s ISDN   | Full Internet Protocol (IP) connectivity, with "always-on" option   |
| <b>Other service features</b> | Optionally, a 64kbit/s Unrestricted Digital Information (UDI) channel. STU-III and other security add-ons | STU-III and other security add-ons, including "secure tunnelling" using the L2TP protocol to create a virtual private network (VPN) |

Avionics for use with Swift64 are compatible with the proven Inmarsat high-gain antennas and onboard infrastructure already installed on most of the world's long-haul airliners, as well as a large part of the corporate jet fleet.

Swift64 terminals now offer up to four 64kbit/s channels that can be bonded to produce a 256kbit/s data rate. Application of compression and acceleration techniques can boost the effective rate to beyond half a megabit per second.

Swift64 avionics, usually packaged in a single 2MCU box, can be obtained from a number of different suppliers. The equipment can plug in alongside an existing Inmarsat Aero H installation, making use of its high-gain antenna, or can be installed along with its own antenna for standalone operation. Inmarsat high-gain antennas are already installed in thousands of commercial, corporate and government aircraft and can be obtained from suppliers worldwide.

[Privacy](#) | [Terms & Conditions](#) This site is best viewed with Internet Explorer 6.

#### Latest news

► **Mobile phones set for take-off**

► **Nasa flies pilotless plane**

► **Inflight aid for heart victim**

► **Inmarsat to extend BGAN**

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**Filed by Verizon Airfone on Sep. 28, 2004 in conjunction with “Satellite Competition to Terrestrial Air-to-Ground” white paper.**



## **Asiana Airlines Selects Connexion by Boeing for In-Flight Connectivity**

**SEOUL, August 26, 2004** - Asiana Airlines, one of the newest members of the Star Alliance, has selected [Connexion by Boeing](#) as its provider of high-speed Internet-based communications onboard its long-haul fleet. The letter of intent agreement calls for the first installation of the Connexion by Boeing<sup>SM</sup> mobile connectivity service to commence in production on Asiana's 777-200ER airplane targeted for delivery in July 2005, with service starting shortly after that. Financial terms of the agreement were not disclosed.

Asiana Airlines, which recently celebrated its 16th anniversary and first anniversary with the Star Alliance, services one of the world's most technologically advanced populations. South Korea has the world's strongest acceptance rates for broadband access per household, with 75 percent of homes having either DSL or cable connectivity.

"We are extremely pleased that Asiana is demonstrating its strong commitment to passenger service by choosing Connexion by Boeing," said Scott Carson, Connexion by Boeing president. "This service is especially fitting for Asiana's passengers, as South Korea has the highest broadband penetration rate in the world. The high-speed connectivity that Asiana passengers experience in their homes and offices now will be available to them at 37,000 feet," Carson said. "Connexion by Boeing truly adds value for Asiana's passengers, and also for the airline through enhanced operational efficiencies."

"Choosing Connexion by Boeing to address the in-flight communication needs of our passengers very much aligns with our goal to become recognized by our customers as the best airline in the world," said Byung-Wui, Ghil, executive vice president of purchasing for Asiana Airlines. "Our passengers are used to surfing the Internet and sending and receiving e-mail messages while on the ground. With Connexion, this innovative, new high-speed service will provide additional choices that our passengers now demand while in-flight."

Representatives from Asiana and Connexion by Boeing are now working to define the levels of service that will be offered to the airline's passengers, as well as a schedule for the installation of the service on the airline's aircraft. Asiana also is determining the



initial passenger routes for the service, which are likely to include flights between Korea and the United States; Korea and Europe; and intra-Asian routes, including mainland China and Japan.

#### **About Asiana Airlines**

Asiana Airlines, just having celebrated its 16th anniversary, is fast becoming a world leader with innovative passenger and cargo services to 63 destinations worldwide. As a Star Alliance member, Asiana offers the best in services, quality and safety. For more information, please visit [www.flyasiana.com](http://www.flyasiana.com).

#### **About Connexion by Boeing**

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## **Connexion by Boeing and NTT DoCoMo Explore Linking Networks for Internet Access on International Flights**

**TOKYO, April 27, 2004** – [Connexion by Boeing<sup>SM</sup>](#), a business unit of The Boeing Company (NYSE:BA), and NTT DoCoMo, Inc (NYSE: DCM), Japan's leading mobile communications company, today announced the signing of a memorandum of understanding (MOU) for negotiating an associate service provider agreement that would make the Connexion by Boeing <sup>SM</sup> real-time, high-speed Internet service available to NTT DoCoMo's popular Mzone<sup>TM</sup> wireless LAN service users. Based on the terms of the agreement the availability is expected to begin around August 2004.

As part of the MOU, Connexion by Boeing and NTT DoCoMo will explore linking their respective networks, providing NTT DoCoMo's Mzone users with a seamless and simplified solution for accessing the full richness of the Internet when in flight. Airline passengers who have an Mzone account will enter their user identification and password to access the Connexion by Boeing service, and they will be able to subsequently receive their billing for service access as an add-on to their existing Mzone bill. The companies will also consider jointly developing new in-flight wireless services for international passengers.

"We are very pleased to join with NTT DoCoMo in making Connexion by Boeing's wireless broadband service more easily accessible for its Mzone users," said Connexion by Boeing President Scott Carson. "Connexion by Boeing is proud to serve NTT DoCoMo's Mzone customers in making their air travel experience even more productive and enjoyable."

In announcing the agreement, Kimio Tani, executive vice president and managing director of Mobile Multimedia Division of NTT DoCoMo commented, "NTT DoCoMo is promoting global mobility support, so we are delighted to cooperate with Connexion by Boeing to offer a convenient mobile environment to our customers in the air."

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business aviation and maritime markets. For more information, please visit [www.connexionbyboeing.com](http://www.connexionbyboeing.com).

### **About NTT DoCoMo**

NTT DoCoMo is the world's leading mobile communications company with more than 48 million customers. The company provides a wide variety of leading-edge mobile multimedia services. These include i-mode®, the world's most popular mobile internet service, which provides e-mail and internet access to over 41 million subscribers, and FOMA®, launched in 2001 as the world's first 3G mobile service based on W-CDMA. In addition to wholly owned subsidiaries in Europe and North America, the company is expanding its global reach through strategic alliances with mobile and multimedia service providers in Asia-Pacific, Europe and North America. NTT DoCoMo is listed on the Tokyo (9437), London (NDCM), and New York (DCM) stock exchanges. For more information, visit [www.nttdocomo.com](http://www.nttdocomo.com).

*i-mode and FOMA are trademarks or registered trademarks of NTT DoCoMo, Inc. in Japan and other countries.*

*NTT DoCoMo's FOMA service is available only to subscribers in Japan.*

*Mzone is a trademark of NTT DoCoMo, Inc in Japan.*

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## **Connexion by Boeing Selected by Korean Air for In-Flight Connectivity Service**

**SEOUL , April 26, 2004** – Korean Air, one of the world's leading commercial airlines, today announced it has selected [Connexion by Boeing](#) as its service provider of high-speed Internet-based communications. The agreement calls for the first installation of the Connexion by Boeing<sup>SM</sup> mobile connectivity service on the carrier's long-haul fleet of 747-400s and 777ERs in early 2005, with service beginning shortly after that. Financial terms of the agreement were not disclosed.

Today's announcement makes Korean Air the first Korean airline to sign up for the Connexion by Boeing service.

"With our agreement to provide the Connexion by Boeing service to Korean Air and its passengers, we are gaining a widely respected airline customer that has consistently demonstrated a strong commitment to innovation and passenger services," said Scott Carson, Connexion by Boeing president. "Korea has the highest broadband penetration rate in the world. So the high-speed connectivity that Korean Air passengers have in their homes and offices can now be extended to their in-flight travel experience, providing them with affordable choices for how to spend their time in the cabin."

"Proudly celebrating our 35th anniversary this year, we announced a new vision to provide customers a greatly enhanced in-flight experience and instill a new corporate culture within Korea Air. Our new vision is 'to be a respected leader in the world airline community' and we call it "Excellence in Flight," which has three supporting pillars: Service Excellence, Operational Excellence and Innovative Excellence," said Mr. Y.H. Kim, president of Passenger Business Division for Korean Air. "As part of our efforts to fulfill 'Service Excellence,' we chose Connexion by Boeing to provide our customers with a superb in-flight experience. We are sure that they will perfectly address the in-flight communication needs of our passengers with real-time, high-speed Internet and email access and also align with our goal to be recognized by our customers as the best airline in the world," he added.

Representatives from Korean Air and Connexion by Boeing are in the process of defining the levels of service that will be offered to the airline's passengers, as well as a schedule for the installation of the service on the airline's aircraft. Korean Air also is determining the initial passenger routes for the service and will announce that information at a future date.

**About Connexion by Boeing**

Connexion by Boeing, recipient of the 2003 World Travel Award for the World's Leading High-Speed Internet Services Provider, brings high-speed Internet, data and entertainment connectivity to travelers via broadband connection to the aircraft.

Connexion by Boeing, which is a business unit of The Boeing Company (NYSE:BA), has definitive agreements with Lufthansa, Scandinavian Airlines System, Japan Airlines, ANA and Kingdom Holding Co., to equip their long-haul aircraft with the mobile connectivity service. Singapore Airlines and China Airlines also have announced their intent to install the Connexion by Boeing system on their long-range aircraft.

Additionally Connexion by Boeing has announced a high-speed connectivity solution for the business aviation and maritime markets. For information about the Connexion by Boeing service, please visit [www.connexionbyboeing.com](http://www.connexionbyboeing.com).

**About Korean Air**

Korean Air, with a fleet of 116 aircraft, is one of the world's top 20 airlines and operates almost 400 passenger flights per day to 87 cities in 31 countries. Korean Air is a founding member of SkyTeam, the global airlines alliance – partnering AeroMexico, Air France, Alitalia, CSA Czech Airlines and Delta Air Lines - that provides customers with extensive worldwide destinations, flights and services. More on Korean Air's programs, routes, frequency and partners is available at [www.koreanair.com](http://www.koreanair.com).

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## **ANA and Connexion by Boeing Sign Definitive Internet Services Agreement**

### **Satellite Coverage by SES AMERICOM Bolsters Connectivity over North Pacific Region for Pioneering Air Carriers Offering High-Speed Access in Flight**

**TOKYO, Jan. 15, 2004** - ANA (All Nippon Airways) and Boeing (NYSE:BA) today announced that the two companies have signed a definitive service agreement for the installation of the [Connexion by Boeing<sup>SM</sup>](#), mobile Internet service on the air carrier's long-haul fleet of aircraft. The announcement was augmented by an agreement with SES AMERICOM for satellite coverage over the North Pacific region, to be used by ANA and other leading global air carriers.

During a joint press conference in Tokyo, Connexion by Boeing President Scott Carson praised ANA and SES AMERICOM for their contributions and support in helping to make connectivity possible for people on the move in the Asia-Pacific region.

"ANA is to be commended for moving swiftly to ensure its passengers benefit from the added value that mobile connectivity can bring to the passenger travel experience and to airline operations," said Carson. "This agreement helps them address one of the most requested passenger amenities -- real-time, affordable connectivity -- while further positioning the airline as a leader in passenger services. That service offering is bolstered by the capabilities provided to us by SES AMERICOM, which supplies us with a world-class service provider, and a coverage solution that will benefit ANA and the other leading air carriers who are helping to drive the mobility revolution that's under way around the world."

"Connexion by Boeing provides ANA with an innovative technology solution that we believe will best meet our customers' expectations and needs for in-flight communications," said Senior Vice President, Engineering & Maintenance, Shinsuke Maki. "We look forward to bringing the benefits of real-time connectivity to our passengers in the very near future."

With the framework of the agreement in place, members of the ANA and Connexion by Boeing teams are now focusing on defining the installation schedule and the specifics regarding start of service and introductory routes, which will be announced at a future date once the current restructuring of the ANA long-haul fleet is completed.

Financial terms of the arrangement were not disclosed.

The agreement with SES AMERICOM is the logical next step in Connexion by Boeing efforts to provide service coverage on the majority of the routes served by commercial airline operators. With the additional satellite capacity, the mobile services provider can now offer in-flight

connectivity coverage from the eastern U.S. seaboard to Europe and parts of Asia, continuing around the globe, reaching back to the Western United States. Connexion by Boeing recently announced its intent to expand its core business into the maritime environment. Once deployed, vessel operators in the North Pacific region will use the SES AMERICOM satellite capability to enhance ship-to-shore-communications.

Based on the terms of the agreement, SES AMERICOM will outfit its new hybrid WORLDSAT-3 satellite, to be built by Alcatel Space, with dedicated Ku-band transponders to be used by the Connexion by Boeing service. Scheduled for launch by the end of 2005, WORLDSAT-3 will provide Connexion by Boeing with satellite capacity over a region stretching as far west as Singapore and Korea, above the Arctic Circle, south below New Zealand and as far east as the western coast of the U.S. Once launched, WORLDSAT-3 will be parked in an orbital slot located at 172 degrees East and be primarily used for high-data rate connectivity services. Connexion by Boeing will begin service in portions of the North Pacific region beginning in early 2005 using interim satellite service providers until the WORLDSAT-3 satellite comes online.

Connexion by Boeing Director of Supplier Management Jeff Flagel notes that leasing transponders on Ku-band satellite presents a low-risk solution for providing satellite-based broadband services to aircraft and maritime vessels.

"Using leased, dedicated transponders is a solid, economical approach to providing the necessary system capacity, bandwidth and transoceanic coverage to commercial and private airline operators and the passengers they serve," said Flagel. "Our agreement with SES AMERICOM is an excellent example of that strategy in a manner that not only benefits our commercial and private aircraft customers, but also allows us to expand our core business in the process."

#### **About Connexion by Boeing**

Connexion by Boeing, recipient of the 2003 World Travel Award for World's Leading High-Speed Internet Services Provider, brings broadband Internet, data and entertainment connectivity to travelers. In addition to ANA, the Boeing business unit recently announced a high-speed connectivity solution for the business aviation market, and definitive service agreements with Lufthansa, Scandinavian Airlines System and Japan Airlines to equip their long-haul aircraft with the mobile connectivity service. In addition, Singapore Airlines, China Airlines and Kingdom Holding Co. have announced their intent to install the Connexion by Boeing system on their long-range aircraft. For information about the Connexion by Boeing service, please visit [www.connexionbyboeing.com](http://www.connexionbyboeing.com). For general information, visit [www.boeing.com/connexion](http://www.boeing.com/connexion).

#### **About ANA**

ANA came into existence in 1952 and is now one of the top ten largest airlines in the world, carrying with its sister companies almost 51 million passengers per year to 46 destinations in Japan, and to 21 overseas cities in 10 countries on its fleet of 181 aircraft. ANA joined Star Alliance in October 1999, gaining access to over 700 airport destinations in 128 countries.

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## Kingdom Holding Company Selects Connexion by Boeing for In-flight Connectivity

**DUBAI – Dec. 7, 2003** – Kingdom Holding Company (KHC) today announced that it has selected [Connexion by Boeing](#), a business unit of Boeing (NYSE:BA), as its provider of connectivity and direct broadcast television (DBS) services in flight.

The agreement calls for the initial installation of the Connexion by Boeing<sup>SM</sup> mobile information service to be on KHC's 747 aircraft in 2004 during modification completion at Associated Air Center, for service beginning in early 2005. While financial and option terms were not disclosed, the agreement positions KHC as the first privately-owned aircraft to be equipped with the Connexion by Boeing next-generation antenna in the Middle East region.

"This agreement with Kingdom Holding is another boost of confidence in the added value that broadband connectivity can bring to both private and commercial aircraft operators," said Connexion by Boeing President Scott Carson. "While high-bandwidth communication capabilities can significantly enhance the commercial passenger experience, there are considerable maintenance, communication and productivity aspects that are beneficial for private aircraft operators. Kingdom Holding recognizes that value and we are very pleased to have them as a customer."

Passengers aboard an aircraft equipped with the Connexion by Boeing service are effectively able to extend their lifestyle or office management capabilities to 35,000 feet. Service users can access regional live television from compatible satellites providing DBS services or use the high-speed, high-bandwidth connectivity to access the Internet and firewall-protected corporate intranets, send outgoing emails or open large attachments from incoming emails; manage their personal or work-related assets, receive news, weather or destination information; and view web-based entertainment content.

### About Connexion by Boeing

Connexion by Boeing is the mobile information services provider bringing broadband Internet, data and entertainment connectivity to mobile travelers. The Boeing business unit recently announced a high-speed connectivity solution for the business aviation market, and definitive service agreements with Lufthansa, Scandinavian Airlines System and Japan Airlines to equip their long-haul aircraft with the service beginning in early 2004. In addition, both All-Nippon Airways and Singapore Airlines have announced their intent to install the Connexion by Boeing service on their long-range aircraft. For service-specific information visit [www.connexionbyboeing.com](http://www.connexionbyboeing.com) or for general information [www.boeing.com/connexion](http://www.boeing.com/connexion)

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## Singapore Airlines Selects Connexion by Boeing for In-Flight Connectivity



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[boeingmedia.com](http://boeingmedia.com)**

**SINGAPORE, Nov. 11, 2003** – Singapore Airlines (SIA), a world leader in in-flight cabin services, has selected Connexion by Boeing as its provider of choice for high-speed Internet-based communications on board. The letter of intent agreement calls for the Connexion by Boeing<sup>SM</sup> mobile information service to be installed on 40 of SIA's long-haul jetliners with an undisclosed number of options for additional service installations.

Today's announcement in Singapore precedes a definitive service agreement and establishes the framework for the power of in-flight broadband communications to be made available to SIA's customers in 2004. Financial terms of the agreement were not disclosed.

"We applaud Singapore Airlines for its continued industry leadership in bringing innovative and value-added services to its passengers and we are pleased to be selected as one of their forward-looking service offerings," said Connexion by Boeing President Scott Carson. "They took a strong look at our business case and the value that connectivity could bring to passengers in the Asia-Pacific region, where technology adoption is tremendously high. In the end, the airline clearly recognized that it can further distinguish its levels of service from other airlines."

Said Singapore Airlines' Senior Vice President, Product and Services, Yap Kim Wah: "This project is part of the development of the Singapore Airlines CyberCabin<sup>TM</sup>. With this partnership with Connexion by Boeing, we are challenging the boundaries of in-flight connectivity to offer our customers an even wider array of entertainment options. This technology will enable our customers to tap into broadband services that will allow them to surf the Internet, send and receive emails and view up to 12 broadcast television channels."

In addition to the data services, Connexion by Boeing will provide SIA customers with real-time television. Installation of the service is expected to begin by the third quarter of 2004 and launched on commercial services shortly thereafter.

SIA plans to offer the Connexion by Boeing broadband service on all

long-haul flights. SIA's in-flight entertainment system KrisWorld offers over 200 entertainment options that include 29 blockbuster movies, more than 60 hours of short features, up to 150 CD albums and 12 audio channels, over 30 games from the Nintendo Game Boy® series, interactive multi-player games like mahjong, and news from around the world. As of 1 November, SIA's operating fleet includes passenger aircraft consisting of 30 Boeing 747 and 51 Boeing 777 airliners.

#### **About Singapore Airlines**

Singapore Airlines (SIA) is one of the world's leading international airlines, operating a modern fleet of 81 passenger aircraft. The route network of the SIA Group, including Singapore Airlines Cargo and SilkAir, covers 86 destinations in 36 countries.

The SIA Group has over 20 subsidiaries, covering a range of airline-related services from cargo to catering, and baggage handling to engine overhaul. SIA's growth has been founded on its dedication to be an innovative market leader, combining a quality product with excellent service. For more information, please visit [www.singaporeair.com](http://www.singaporeair.com).

#### **About Connexion by Boeing**

Connexion by Boeing, a business unit of The Boeing Company (NYSE:BA), is the mobile information services provider bringing broadband Internet, data and entertainment connectivity to mobile travelers. The Boeing business unit recently announced a high-speed connectivity solution for the business aviation market, and also announced definitive service agreements with Lufthansa and Scandinavian Airlines System (SAS) to equip their fleets of long-haul aircraft with the service beginning in early 2004. In addition, British Airways has completed a successful service demonstration, and both Japan Airlines and All-Nippon Airways have announced their intent to install the Connexion by Boeing<sup>SM</sup> service on its long-range aircraft. For service-specific information please visit the Connexion by Boeing portal at [www.connexionbyboeing.com](http://www.connexionbyboeing.com) or, for general information, [www.boeing.com/connexion](http://www.boeing.com/connexion).

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## **All Nippon Airways Signs Letter of Intent for Installation of the Connexion by Boeing Mobile Internet Service**

### **Leading Asian Carrier to Help Pioneer Passenger Connectivity During Flight**

**SEATTLE, Sept. 9, 2003** – All Nippon Airways (ANA) and Boeing (NYSE:BA) today announced the signing of a letter of intent signaling the air carrier's plan to install the [Connexion by Boeing<sup>SM</sup>](#) mobile Internet service on its long-haul commercial aircraft.

Commenting on the announcement during the World Airline Entertainment Association conference in Seattle, Connexion by Boeing President Scott Carson applauded ANA for its commitment to passenger services that add value for airline passengers as well as for the airline's operations.

"ANA has consistently demonstrated leadership in bringing passenger-facing amenities to its passengers and by making prudent, value-added business decisions," said Carson. "This agreement will help fulfill a highly requested passenger need and also provide enhanced communications and revenue opportunities for their airline operations."

"In choosing Connexion by Boeing, ANA has chosen an innovative technology solution that we believe will best meet our customers' expectations and needs for in-flight communications," said Shinichiro Ito, Senior Vice President for Marketing. "We look forward to bringing the benefits of real-time connectivity to our passengers in the very near future."

Members of the ANA and Connexion by Boeing teams are working closely to define the levels of services that will be offered and an installation schedule as part of finalizing the service agreement that will pave the way for the broadband communication service to be installed on the ANA fleet of long-haul aircraft. Financial terms of the arrangement were not disclosed.

Boeing has a strong history of cooperation with airlines in the Asia Pacific region and this year is celebrating the golden anniversary of its operations in Japan, while ANA last year also marked its 50th year of service. For the past five decades, Boeing has witnessed and participated in ANA's transformation to one of the world's leading airlines.

#### **About Connexion by Boeing**

Connexion by Boeing is the mobile information services provider bringing high-speed

Internet, data and entertainment connectivity to mobile travelers. The service is currently available today to operators of private and executive aircraft in the U.S. The Boeing business unit recently announced definitive service agreements with Lufthansa and Scandinavian Airlines System (SAS) to equip their fleet of long-haul aircraft with the service beginning in early 2004. In addition to a successful service demonstration with British Airways, Japan Airlines also has announced its intent to install the Connexion by Boeing service on its long-range aircraft. For additional information, visit the Connexion by Boeing web site at [www.boeing.com/connexion](http://www.boeing.com/connexion)

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## **Scandinavian Airlines and Connexion by Boeing<sup>SM</sup> Sign Definitive Service Agreement**

### **Leading European Carrier to Help Pioneer Wireless Connectivity in the Cabin**

**STOCKHOLM, July 2, 2003** - Scandinavian Airlines System (SAS) and [Connexion by Boeing](#), a business unit of Boeing (NYSE: BA), today announced the signing of a definitive service agreement for equipping the European air carrier's long-haul aircraft with the broadband mobile information service.

Based on the terms of the agreement, 11 SAS long-haul aircraft will be equipped with leading-edge wireless technology that will allow airline passengers to access the Connexion by Boeing service. An undisclosed number of options for expansion of the service onto additional SAS aircraft also are part of the agreement. Service installations will commence in early 2004, while aircraft model types and flight routes will be determined in the months ahead. Financial terms of the agreement were not disclosed.

Connexion by Boeing President Scott Carson commended SAS for its leadership in helping to usher in the age of in-flight wireless broadband access in Scandinavia and throughout Europe.

"The future for wireless connectivity in the cabin is now, and SAS has demonstrated its leadership by embracing the technology and the added value that real-time connectivity can bring to its passengers," said Carson. "This agreement is a significant step in the history of aviation, one which helps to further densify the North Atlantic corridor and clearly marks a major transition from complex, hard-wired cabin configurations to the simplicity of wireless networks. The result will be long-term value for airlines and their passengers."

"The Nordic region is one of the world's most IT-dense areas and the ability to communicate easily from the air was high on our passengers' list of priorities," says Jens Willumsen, who is responsible for Market & Product Management at Scandinavian Airlines. "This is why we have been working for a long time to achieve a complete solution that meets our customers' demands. We have long understood the benefits of wireless technology and since it is now making progress, it was an even more natural choice. Scandinavian Airlines was also first in the world to introduce wireless access to its lounges in 1999."

Once an airliner is equipped with the Connexion by Boeing service, SAS passengers will have the ability to use wireless-enabled laptops or personal electronic devices (PEDs) for real-time, high-speed access to the full richness of the Internet including two-way e-mail, virtual private network access and streaming audio and video content, by accessing an open wireless local area network onboard. The evolution of Wi-Fi technology into commercial airliners is expected to help simplify cabin distribution, reduce costs, and eliminate wires associated with traditional hard-wired connections. SAS also is expected to benefit from increased operational efficiencies through weight and power reductions, and reduced aircraft down time for system installation.

Connexion by Boeing continues to gain momentum in the marketplace as it prepares for the introduction of commercial service in early 2004. The Boeing team continues to work the global regulatory process, complete and certify the next-generation antenna and define the satellite and ground-based networks that will help broaden the availability of broadband connectivity in flight.

#### **About Connexion by Boeing**

Connexion by Boeing is the mobile information services provider bringing high-speed Internet, data and entertainment connectivity to mobile travelers. The service is currently available today to operators of private and executive aircraft in the U.S. The Boeing business unit recently announced a definitive service agreement with Lufthansa to equip its fleet of long-haul aircraft with the service beginning in early 2004. In addition to a successful service demonstration with British Airways and the service agreement with SAS, Japan Airlines also has announced its intent to install the Connexion by Boeing service on its long-range aircraft. For additional information, visit the Connexion by Boeing web site at [www.boeing.com/connexion](http://www.boeing.com/connexion).